The CHEMIST

OCTOBER, 1938 VOLUME XV, NO. 7

THE INDUSTRIAL CHEMIST

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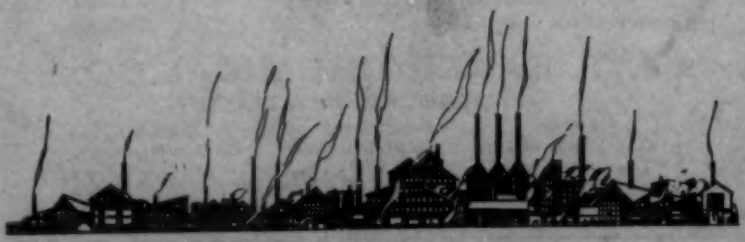
ANOTHER STEP TOWARD A BETTER PROFESSION OF CHEMISTRY



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The CHEMIST

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THE AMERICAN INSTITUTE OF CHEMISTS
HOWARD S. NEIMAN, *Secretary*
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The Licensing of Chemists

The subject of the licensing of chemists is receiving the consideration of the Council which has appointed a committee, under the chairmanship of Dr. J. W. E. Harrisson, to assemble information. The Committee will be pleased to receive suggestions from those interested. This material should be sent to the Secretary of THE AMERICAN INSTITUTE OF CHEMISTS.

To Members of The American Institute of Chemists

THE January, 1939, issue of THE CHEMIST will contain the constitution, by-laws, code of ethics, and list of members of THE AMERICAN INSTITUTE OF CHEMISTS. Following each member's name, the business position, firm, and business address will be listed as they now appear upon our records, unless we are advised to the contrary.

For the convenience of those members who wish to make sure that they are listed correctly, a coupon is attached below. Please fill it out and return it to the Secretary on or before December 1, 1938.

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The Industrial Chemist

The following article is taken from one of a series of appraisals and abstracts of available literature on occupations, published by the National Occupational Conference, New York

Appraisal of Literature

The literature on industrial chemistry is voluminous. No doubt this is due to the development of the science of chemistry within the present century, and to the unprecedented expansion of its applications to industry. It is a literature which, in its technical aspects, is full, authoritative, and up-to-date as only scientific literature can be. But in its occupational aspects it lags behind the times as it sometimes seems only occupational literature can lag. Chemists writing about chemistry are cautious and precise; when they write about occupations in chemistry they appear to grow rash and uncertain. Especially they tend to see the future in glowing colors; and to them the attractions of the vocation have virtually no offsetting disadvantages. Writers of occupational books and pamphlets and other materials for vocational guidance have in too many cases borrowed from these authors with apparent trust and confidence.

Yet, the literature deals rather adequately with the occupation of the chemist in industry. The reader who has been cautioned to discount the more glittering passages in what he reads may come away from his reading with a moderately good idea of the occupation, at least in its general aspects.

Abstract of Literature

What is Done in This Occupation

There are at least five more or less distinct grades of industrial chemists, depending on their age, qualifications, and experience, and on the size of the organization or plant in which they are employed. These are:

1. Technician or helper.
2. Control chemist
3. Research chemist
4. Chemical engineer
5. Chief chemist (executive)

The titles applied to chemists vary greatly. It is unlikely that the descriptions of the duties of chemists in the five groups which have been indicated above will apply to every plant or laboratory in which chemists are employed. The terms used and the duties enumerated below agree with those most frequently found in the literature.

Technicians or *helpers* perform simple operations that require chiefly manual skills which can be learned in a short time. For example, in the manufacture of cheese, it is necessary to determine when the milk (from which cheese is made) has become thoroughly sour or "ripened". A small sample is drawn from the vat in which the milk is being processed, and this sample is tested with lactic acid to determine if curds will form. Similarly simplified tests are used in many manufacturing processes. They were devised by chemists, and only persons trained in chemistry understand why they are used; but one does not need to be a chemist to make these tests. In the case of the lactic acid test described, the technician needs to know only how much acid to use and what changes to look for. Hundreds of operations, equally routine, are performed by technicians. The following list of some of the specific things which such a worker may do suggests how little knowledge of chemistry he needs to have:

Take sample	Make filtrations
Grind sample	Make precipitations
Prepare solution	Standardize solutions
Use analytical tables	Weigh on balance to .01 gm.
Measure temperatures	(Greater accuracy is sometimes required)
Determine melting point	
Determine boiling point	Dry in electric oven
Use commercial handbooks	Store sample

Control chemists are so called because they "control" manufacturing processes; i.e., they make provision to insure uniformity in quality of the final product of manufacture by testing the quality of raw materials, then testing the product of each manufacturing operation, and checking, sometimes frequently, the quality of the final product. In a bakery, for example, the flour, the water, the milk and the other materials may be analyzed before being used. The dough may be tested for bacterial content and chemical structure. It may be tested again to check the fermentation process; and finally a sample loaf from each batch may be analyzed to make sure it is up to standard. The chemist must carry out the testing program quickly and accurately. Many of these tests may be made by technicians or helpers, but a

competent chemist must supervise the work, and the more complicated analyses are usually performed by trained chemists.

Research chemists are those who seek for new methods, new products, or for means to eliminate defects in the processes or materials used. They study formulas for mixtures, and treat the mixed materials in various ways by means of heat, electricity, gases, and acids. They work with and advise the chief chemist or the executives of the organizations employing them.

Research chemists have created fertilizers to increase the productive powers of the soil, and produced insecticides to kill the pests that destroy crops. They have discovered how to make more than a hundred useful products from corn. They have converted cottonseed and wood pulp into synthetic fibers from which cloth is made. From coal they have made explosives, disinfectants, perfumes, medicines, and practically all the dyes used in the textile industry. The list of their accomplishments could be extended endlessly. The point to be made here is that each of these products was the result of long periods of careful, painstaking research and experimentation.

Chemical engineers, as their title implies, combine the duties of chemists and engineers. They design and operate (or supervise the operation of) the machinery and equipment by means of which chemical processes are carried on. In the development of the "cracking" process, for example, whereby the gasoline yield from crude petroleum was greatly increased, chemical engineers designed the "cracking" machinery and are in charge of its operation.

Chief chemists supervise all the chemical laboratories and chemical tests and analyses of a plant, and act as scientific advisers to the management on matters relating to production, development, and research. They also supervise the work of other chemists employed by the company.

In many chemical and manufacturing industries chemists are sometimes promoted to positions of executive responsibility, in which they give expert judgment on manufacturing processes, materials, and plans. Some chemists, when they have attained expertness, set up their own laboratories for consultation purposes in certain processes or industries.

Women in the Field

Women engage in virtually every phase of industrial chemistry, except those in which working conditions or other factors make it difficult for women to enter. Such an example is the production departments of steel mills, where chemists may be required to work in

the midst of furnaces and rolling mills. Women are found, however, in the laboratories of steel manufacturing plants. Many women trained in chemistry are employed in clerical, sales, and other work in which their knowledge of chemistry is useful. A study of the work done by fifty-two women chemists in industrial and commercial concerns revealed that they were engaged in making analyses and conducting researches in coal and coke, in metals, rubber, new uses and applications of certain classes of compounds, and vitamin content of food. Eleven of these women did no laboratory work, but handled stenographic and secretarial work, trademark and patent matters, library work, literature surveys, and advertising and translating. One woman vice-president of a chemical corporation served as saleswoman, advertising manager, and consulting chemist.

Abilities Essential to Success

So far as it has been possible to discover, no objective studies of the traits of successful industrial chemists are available. Virtually all the personal qualities mentioned in the literature as necessary to the chemist are equally necessary for success in any other comparable vocation. There are, perhaps, some exceptions. Good sense organs—those of sight, hearing, taste and smell — are absolutely essential. A strong physical constitution, especially resistance to lung and throat disorders, is needed to escape injury from certain fumes, dusts, and gases. The mental equipment of the prospective chemist should include, in addition to intelligence, keen analytical abilities and powers of close observation. The work of the chemist requires close application, patience and perseverance, and absolute accuracy.

No doubt it is possible to secure employment as a chemical technician or helper without having all—or any—of these traits to a marked degree. The work of the technician is usually so routinized that satisfactory performance requires little more than average intelligence and some degree of manual dexterity, together with the ability to follow detailed instructions. But for advancement in the profession the higher mental capacities which have been enumerated are important.

Preparation Necessary

The preparation demanded of candidates for jobs in industrial chemistry varies greatly with the nature of the jobs.

Technicians or helpers without previous training or experience are sometimes engaged and afterward trained in the making of some one or a series of routine tests. Few employers, however, would give

favorable consideration to an applicant who was not at least a high school graduate. Under the conditions of the past few years, many college graduates, with majors in chemistry, have been available for such positions. It is only in large industrial organizations, where many routine tests are to be carried on constantly that the young person untrained in chemistry or with a one year high school chemistry course is likely to find employment.

Control chemists are almost invariably college graduates who have majored in chemistry and had some experience in actual applications of chemistry to industrial processes.

Chemical engineers are graduates of special courses in chemical engineering, and usually have had extensive experience in chemical and engineering lines.

Research chemists are usually holders of the Ph.D. degree in chemistry, with considerable industrial experience.

Chief chemists and other executives of chemical laboratories or chemical industries may be recruited from the ranks of control chemists, research chemists, or chemical engineers. They are advanced to such positions of authority because of professional ability and special fitness for managerial or administrative work.

Elementary instruction in chemistry is given in most high schools. Higher training in chemistry may be gotten in many colleges, universities, and schools of technology in various parts of the country. Chemical engineering courses are also available in many of the same institutions. For those who are already engaged in work in industrial chemistry and desire additional training, evening courses are offered in some colleges and schools in the larger cities.

Entrance and Advancement

The beginning chemist's first job in industry is likely to be largely of a routine nature, even if he is a college graduate with specialized training in chemistry. It is customary for employers to assign new employees to the making of such simple control tests as have been described in earlier parts of this abstract until they have proved themselves worthy of being entrusted with more important work. The point to be stressed is that graduate chemists may reasonably expect that they will be advanced to such important work, and that they will receive increased pay likewise. On the other hand, the technician who is untrained in chemistry, or who has had only very slight training (such as a high school course) must usually resign himself to continuing in his capacity as routine worker, unless he has unusual abilities

and is willing to study hard in the evenings and at other times in order to make up for his lack of earlier training.

Although most research chemists are persons of considerable experience in industry, this is not invariably true. Ph.D.'s in chemistry may sometimes enter directly into chemical research work for industrial organizations. It is unusual for persons with less extensive training than possession of the doctor's degree signifies to find immediate employment in research work in industry.

Many high schools and vocational schools make efforts to secure employment for their graduates. Most colleges and technical schools which offer instruction in chemistry and chemical engineering maintain placement services which make every effort to find jobs for graduates. Very often, too, individuals find jobs by making application to prospective employers, either in person or by mail.

As an aid to chemists and chemical engineers in search of jobs, the Chemist Advisory Council was recently formed. It has headquarters at 300 Madison Avenue, in New York City. This council will advise recent graduates and unemployed chemists, and will "sponsor a placement bureau making available a working register of all chemists and chemical engineers".

Compensation

The young chemist must guard himself against putting too much stress on immediate compensation. Where he will stand in his profession in ten years is the more vital question. For the chemist in industry, earnings depend largely on business conditions. No really reliable statistics of earnings are available. Most recent estimates put beginning wages for technicians and helpers at about $15 to $20 a week. College graduates beginning in similar jobs are sometimes paid more, but rarely higher than $30 weekly. Increases in salary without actual promotion in status may raise the technician's wages to $35 weekly, although this is probably a maximum rarely attained. The college graduate, on the other hand, is frequently advanced to the position of laboratory assistant at from $25 to $45 a week, and later to that of control chemist at an annual salary of $1,800 to $2,400—sometimes more. Research chemists usually earn between $2,500 and $4,000 a year. About ten per cent of all industrial chemists are in this group. The earnings of chemical engineers probably vary from $3,000 to $5,000 yearly in the great majority of cases. Perhaps five per cent of all chemical workers are in this group. It is very difficult to estimate the earnings of executives. Probably most salaries of persons in

this class fall between $3,500 and $10,000 a year. In relatively rare cases, the maximum earnings indicated are exceeded by certain individuals. A few experts are paid $25,000 or more a year. Approximately one-third of a group of 353 women chemists reporting salaries for the year 1932 earned less than $2,100, one-third earned between $2,100 and $2,999, and the remaining third $3,000 and over.

Other than economic rewards include: (1) the work itself, which is interesting and creative; (2) publication of results, and consequent recognition; and (3) honors, public and professional, such as election to societies, invitations to give lectures, election to offices of technical societies, and awarding of medals.

Numbers and Distribution of Workers

The U. S. Census does not list industrial chemists as such. The 1930 census reported 47,068 "chemists, assayers and metallurgists", and 15,988 "technicians and laboratory assistants". Most of these were workers who would come under the definition of industrial chemists. The total number engaged in the field of industrial chemistry was probably larger. Of the chemists, assayers, and metallurgists, 1,905 were women; of the technicians and assistants, 7,700 were women. It is worthy of note that only about one in twenty-five of the former classification were women, whereas nearly one-half of the latter group were women. Many young women college graduates have been entering chemical laboratories as technicians and assistants during recent years. It will remain for the next census to reveal whether the more important positions continue to be held in large part by men while women are relatively more numerous in the lower levels jobs.

GEOGRAPHICAL DISTRIBUTION OF CHEMISTS

State (1930)	*Per cent of total*
New York	20.6
District of Columbia	11.2
Pennsylvania	8.8
New Jersey	8.7
Illinois	8.6
Ohio	5.8
Massachusetts	3.5
California	3.4
Michigan	3.4
Delaware	3.0
All others	23.0
	100.0

More chemists were found in New York than in any other state. The District of Columbia came next, a reflection of the number of chemists in government service. In general, larger numbers of chemists are found in the eastern and mid-western states, than in the southern and western states.

Advantages

Some of the most frequently named advantages of the profession of industrial chemistry are: that it has close alliance to other professions and industrial fields, with resultant overlapping of opportunities; that workers feel they have a part in the creation of new products; that the professional status of workers offers opportunities for community leadership; that there are no hazards involved in the work except those resulting from personal carelessness; that working conditions are reasonable and interesting; that it affords opportunities for promotion or independence by establishing a consulting laboratory. Many different kinds of abilities are needed in the vocation and different degrees of abilities may be utilized.

Disadvantages

The disadvantages most frequently cited are that the necessary technical training is expensive; that continuous study is necessary for advancement; that hours are often irregular, Sunday, holiday and night work frequently being required; that much of the work is done under pressure of time and great responsibility; that occasional accidents occur in the laboratory; that some of the work is of a routine and repetitive nature; that benefits of the chemist's discoveries or inventions go to his employer unless the chemist protects himself legally; and that wages are frequently small, considering the investment in education.

Future Trend of Employment

Most writers take the view that the future holds promise of great expansion of the demand for the services of chemists in industry. The science of chemistry itself is still young, and its industrial applications are generally considered to have been scarcely imagined in all their possible variety. Of course, this is a long run prediction. With respect to the immediate future, there is somewhat less optimism. Statistics recently published (in November, 1937) by the Chemists' Unemployment Committee, 300 Madison Avenue, New York, N. Y. showed that there were 732 chemists and chemical engineers on the committee's "active files", i.e., presumably unemployed and seeking jobs. Practically all of these held college or university degrees in chemistry or chemical engineering, and most of them resided in New York City

or its vicinity. Whether or not these workers, and the many others who are doubtless to be found in various parts of the country will be absorbed in industry in the near future depends upon the trend of general business conditions and many other factors. Only a prophet gifted with second sight would attempt to predict what will happen in this area.

Another Step Toward A Better Profession of Chemistry

***By* F. G. Breyer, F.A.I.C.**

PRIOR to 1931, there were but two major problems that called for organized effort on the part of all chemists and chemical engineers in this country. The first of these problems was that of providing for the assembling, digesting, and correlating of the mass of information that chemistry was accumulating here and abroad. A correlary to the assembling activity was the spread of this information. Chemists responded to this obvious need and organized as fine and as well maintained a forum for the assembling and disseminating of technical information as exists. The American Chemical Society and the American Institute of Chemical Engineers, with their local and national, divisional and subdivisional meetings and their journals, have no superior the world over.

The second great need for organized effort on the part of chemists was to make known to the laymen, through a continuing publicity campaign, the substantial part that the science of chemistry and its application, chemical engineering, was playing in making better living for more people. This job has been equally well done. In fact, it has been so well done and the picture made so interesting and attractive that serious and ambitious young men in rapidly increasing numbers are preparing themselves or have prepared themselves to enter a profession which has since 1931 been unable to digest them. It is said that all professions are overcrowded. This conclusion, if accepted, adds nothing to a solution of the question of what chemists are going to do about their own over-crowding.

This is the third major problem, which calls for the very best efforts and the highest organizing skill on the part of chemists. As a group,

chemists have done a fine technical job, but in social matters, up to the present at least, they have clung strongly and tenaciously, perhaps as a result of their tradition and training, to an individualism and aloofness that is fitting less and less satisfactorily into a world of highly organized groups and professions.

Prior to 1931 and particularly in the years from 1916 to 1930, the demand for chemists and chemical engineers was so great that the educational machinery could not be accelerated fast enough to meet the increasing demand. From 1910 to 1930, the average salary granted to a bachelor of science fresh from college increased from $50 per month to $150-$175 per month, and in the case of students with graduate training, from $75-$100 in 1910 to as much as $350 per month in 1930. The educational machine that turns out chemists and chemical engineers, however, caught up with the demand some time in 1930. The recent graduates and present graduates know all too well that the curve of available jobs and the curve of salaries have both dropped precipitously from that year to this, reaching, as near as I can find out, a new low point this spring even below that of 1932 and 1933, at least so far as placement is concerned. I am not so sure about the salary low.

While thousands of chemists, particularly the recent graduates and those about to graduate, know how acute the problem is, the profession generally does not. Some even have adopted the ostrich attitude. Certainly the profession is not adequately set up to tackle it, but tackle it it must, since if there is overcrowding and demoralization at the bottom, sooner or later all will suffer. A realistic approach to the question of public appreciation of the chemist and chemical engineer quickly brings one face to face with the fact that the chemist has not the standing in the community of the doctor or lawyer today. Much of this discrepancy is due to the superior organizations of those two groups, with their powerful American Medical Association and American Bar Association.

Some chemists have recognized the need for a different type of attack than has been used heretofore by the chemical profession, and out of the work of the local Committee on Unemployment and Relief for Chemists and Chemical Engineers of the metropolitan area, an emergency organization set up in 1931, has grown a permanent, national body, the Chemist Advisory Council, Inc. The Council is an incorporated body with a board of directors of national outlook and reputation. It will devote its activities solely to the welfare of chemists. It

is affiliated with no other technical organization and solicits the cooperation and support of all chemists and chemical engineers, affiliated or unaffiliated. The immediate objectives of the Council, in brief, are (1) to try to alleviate some of the distress caused by the undigested surplus of chemists of the last seven years and to help in the unusually difficult situations the older men of the profession find themselves in, with the industrial dislocations that have occurred and the loss of savings during the depression years, and (2) to obtain the coöperation of all chemists and educators in an effort to keep the supply and demand for chemists somewhere near in balance. Supply and demand are as important in the price realized for chemists as in the price realized for wheat.

The Council knows, through the records of the emergency committee, something statistically about this state of unbalance in the metropolitan area, but can only guess about it in the rest of the country. Its first job is a statistical one. We must know for chemists, as we must know for the nation, what the unemployment situation is in detail now and at regular intervals thereafter. It must have a breakdown of that unemployment according to age, training, experience, race and creed, if we are to cope effectively with the problem of overproduction of chemists and chemical engineers and the consequent depreciation of the profession in the eyes of the entrepreneur or manager, who gives the financial reward, and the public, who gives social esteem. Better chemists and chemical engineers, and, in particular, better all around men, not just better technicians, must be the aim, rather than more of the present average.

I close with a plea to chemists and chemical engineers, whether educators, old graduates, recent graduates, this year's crop, or undergraduates, to give serious thought and careful discussion in your forums everywhere in the United States to this most important of all problems facing the chemist today. Support and coöperation in sound and well organized action now will have more to do than anything else with whether the profession of chemistry ten years from today shall attain the stature and dignity of that of law or medicine. It may have more to do with your personal standing in your community than anything you may statistically expect to do as an individual, if the present position of the average chemist is any criterion of the future.

If you are unemployed or a qualified graduate who cannot get a job, send your record and qualifications to the Chemist Advisory Council,

300 Madison Avenue, New York, N. Y. Only through accurate statistics can we hope for the best correctives. No formal placement service has been set up as yet, although it is planned to do so as soon as sufficient funds are available and organization problems on a national scale have been solved. Many men, however, have been put in contacts that have resulted in jobs. There is no charge for any service the Council renders.

Research Creates New Industries

Industrial scientific research is an established business, a business that in this country alone requires the services of forty thousand trained workers in one thousand six hundred laboratories, and a yearly expenditure of $300,000,000. I mention these figures in order to establish a point that is fundamental: Namely, when research was conducted on a small scale, the speculative element was tremendous. Today, however, one can safely forecast that each year will bring forth a substantial number of discoveries and improvements which will affect importantly our welfare nationally and individually. Thus, when many thousands of research workers are busily and systematically occupied, the law of averages operates just as it operates in the insurance business. Although I cannot tell you precisely which of today's laboratory children will attain industrial maturity tomorrow, I can assure you that each and every year there will be a generation of lusty grown-ups.

A sum of more than $8,000,000 has been appropriated by the E. I. du Pont de Nemours Company to construct in lower Delaware the first unit of a plant to produce the new synthetic fiber, nylon, for use in the knitting industry, particularly for hosiery, for use in sewing thread, and for use in woven fabrics. When completed, this initial plant unit will give employment to approximately one thousand people. This illustrates how science is answering the accusation that inventions take jobs away. . . . May I suggest that the popular concept of research be cast aside and for it a truer concept be substituted; namely, a picture of factory construction, of humming machinery, of new jobs, of new wealth, and of increased comforts. Such a concept really portrays what the industrial laboratories of today are doing for the world of tomorrow.

—Charles M. A. Stein, vice-president,
E. I. du Pont de Nemours and Company.

Research a Major Industry

In recent years research laboratories have so multiplied that today research itself might be regarded as a major industry. Accurate figures on total research personnel and expenditures are difficult to get, but according to the National Research Council, there are in the United States more than fifteen hundred industrial and consulting laboratories, employing some twenty-three thousand workers. Dr. E. R. Weidlein, F.A.I.C., director of the Mellon Institute, estimated last year's industrial research expenditures in excess of $250,000,000. In the steel industry alone, the 1937 appropriation for research was over $10,000,000.

The magnitude of research within the chemical industry is indicated by the fact that out of each $100 of sales of organic chemicals in 1937, $4.30 was spent for research. Twenty million dollars is probably a conservative figure for the amount of money spent last year for research by chemical manufacturers. The money spent annually on research by the du Pont Company alone is of the order of $5,000,000.

Scientific research has opened up new avenues of employment for countless thousands through the development of new products which gave birth to new industries. Among such products might be mentioned the automobile, dyes, and other synthetic organic chemicals, rayon, electric refrigerators, the radio, and plastics. In 1900, the horse and buggy business gave jobs to around one million persons. But in 1937, the automobile industry furnished employment, in making, selling, and servicing cars, to over six million persons.

Fifteen of our major manufacturing industries of today have been developed since 1879, and it has been estimated that these fifteen industries have created, directly and indirectly, 15,000,000 new jobs. On the basis of these figures, at least one out of every four persons gainfully employed today owes his job to one of these fifteen industries having their origin wholly or in part in developments resulting from scientific research.

In the du Pont Company, twelve new lines accounted for about forty per cent of the total sales during 1937, and these have been developed largely during the past ten years. During this period seven thousand additional employees were required for the production

and sale of the new items. Incidentally the average price of these products was reduced forty per cent during this period of ten years.

—Ernest B. Benger, General Assistant Chemical Director, E. I. du Pont de Nemours and Company.

In the short space of fifteen years petroleum technologists have made a three-cent cut in the cost of manufacturing a gallon of gasoline from crude oil, according to the American Petroleum Institute.

Meetings of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS will be held on the following dates: December 13, 1938; January 10, 1939; February 14, 1939; March 14, 1939; April 11, 1939; May 9, 1939, and June 13, 1939. Unless otherwise announced, these meetings will be held at The Chemists' Club, New York, N. Y.

In response to several inquiries, THE AMERICAN INSTITUTE OF CHEMISTS and THE CHEMIST wish to state that they are not to be understood as endorsing statements made by contributors or contained in reprints from other publications. THE CHEMIST is an open forum for the expression of opinions on many subjects of interest to the profession. Policies of THE AMERICAN INSTITUTE OF CHEMISTS will be clearly indicated whenever these are presented to our readers.

Dr. J. V. N. Dorr, in accepting the Chemical Industry Medal for 1938 at a joint meeting of the American Section of the Society of Chemical Industry and the American Chemical Society, held in New York, spoke on the value of the American patent system. The creation of new and useful ideas through the mediumship of research and invention has become inextricably interwoven with legislation that protects these ideas and stimulates their application to national economic life. The American patent system is broadly equitable to both parties concerned, the inventor and the public.

The Service of the Chemist Advisory Council

By **M. R. Bhagwat, F.A.I.C.**

A CHEMICAL engineer was released, after a number of years' service, by a company where he had been employed as a plant superintendent. He had contacted several executives and friends in the industry in search of a new connection. Someone suggested that he call at the office of Chemist Advisory Council, Inc. and place his record on file. Not being a member of any of the chemical societies, he was not aware of the existence of the emergency unemployment committee and its successor, the present organization. The writer discussed with him, in great detail, the methods adopted during the past several years in helping those unemployed. It was clearly brought out that these methods varied according to individual instances. In a day or two, he submitted his complete record of education and experience, which was thoroughly discussed regarding its usefulness to various branches of chemical industry. Sufficient information was given regarding companies which he should immediately contact, and the names of some executives were suggested. Within two weeks of his campaign, partly by letter and partly by personal visits, several encouraging possibilities were reported. During this time, he regularly visited the Council's offices to secure further advice and suggestions. One of the companies contacted was particularly pleased with the breadth of his experience and offered him a satisfactory position which he now holds.

ONE temporary project required the services of recent graduate chemical engineers having sufficient training in a particular phase of unit operations. Registrants suitable to the specifications were advised to contact the interested party and the required number were selected. This temporary connection gave the newcomers to the industry some industrial experience and valuable contacts which they could use in securing further connections. One of the chemical engineers, who has been retained to date on a temporary basis carrying on further tests, writes:

"I am deeply indebted to you and the Advisory Council for the advice and encouragement you gave in my search for employment. I am heartily in sympathy with the work of the Council and you

have my sincerest wish that it will rapidly grow in scope and effectiveness. I only hope that those chemists and chemical engineers who are at present employed, and also their employers, will lend their whole-hearted support to the work, not only for the benefit of the profession and the unemployed men but for their own good as well."

HER record of education was forwarded, by a recent graduate, which appeared to be quite impressive. It was well arranged and contained pertinent information regarding her ability to translate langauges. She was also an expert typist-stenographer. It was suggested to her that she could use her languages to an advantage by contacting certain organizations. A technical director in one of these companies showed considerable interest in her qualifications, particularly her ability to speak German fluently, and created a position for her in the organization, which she now occupies.

NOTICE was received by a technical director from his employer that he would be released in the near future. Being a member of several technical societies, he knew about the existence of CHEMIST ADVISORY COUNCIL, INC. During his first visit, various details covering the efforts of the Council in helping those unemployed were discussed. He visited the Council's office regularly and received information regarding chemical organizations and executives who might be interested in his experience. From the various suggestions made, he recalled an organization where he had useful contacts. Correspondence and visits resulting therefrom led to a permanent connection.

A PLANT supervisor, now residing within one hundred and fifty miles from New York City, is in the market for a new connection. He visits the Council's office quite regularly for information and suggestions for use in his campaign towards securing this new connection. Being a stranger in the city, he has often mentioned that the services rendered by the Council on his behalf have saved him a considerable amount of time and many hours of loneliness and discouragement. He hopes that one of the contacts now pending will bring him back into the industry.

COUNCIL

OFFICERS

President, Robert J. Moore
Vice-President, J. W. E. Harrisson
Secretary, Howard S. Neiman
Treasurer, Burke H. Knight

COUNCILORS

Ross A. Baker
Frank G. Breyer
M. L. Crossley
Gustav Egloff
Neil E. Gordon
W. T. Read
Allen Rogers
Norman A. Shepard
Maximilian Toch
Lloyd Van Doren
Gerald Wendt

CHAPTER REPRESENTATIVES

New York	*Niagara*	*Philadelphia*	*Washington*
W. D. Turner	A. W. Burwell	Gilbert E. Seil	Louis N. Markwood

October Meeting

The one-hundred and fifty-fifth meeting of the Council of The American Institute of Chemists was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on October 13, 1938, at six o'clock p.m.

President Robert J. Moore presided. The following officers were present: Messrs: F. G. Breyer, J. W. E. Harrisson, B. H. Knight, R. J. Moore, H. S. Neiman, W. T. Read, N. A. Shepard, M. Toch, Gerald Wendt, L. Van Doren, G. E. Seil. Mr. M. R. Bhagwat, Dr. H. G. Knight, and Miss V. F. Kimball were present.

The minutes of the previous meeting were approved.

The Treasurer's report, showing a bank balance, as of October 13, 1938, of $3614.33 with no unpaid bills, was read and accepted.

The suggestions of the Niagara Chapter for procedures of the Institute were referred to a committee consisting of Dr. Van Doren and Mr. Neiman.

Upon motion made and seconded, the Secretary was instructed to prepare resolutions on the deaths of Dr. Charles H. Herty and Dr. John J. Abel, to publish them in The Chemist, and to send copies to their families.

Mr. Breyer and Mr. Bhagwat reported for the Chemist Advisory Council, and presented the need for greater coöperation and financial support to enable the Advisory Council to be of maximum service to the chemists. It was pointed out that a contribution of $1.00 from each employed chemist would be sufficient to provide working funds for the Advisory Council.

Upon motion made and seconded, it was decided to contribute $50.00 now and $50.00 as of January 1, 1939, to the work of the Chemist Advisory Council.

The Chapter representatives were requested to present to each Chapter the

matter of contributions to the Chemist Advisory Council.

It was decided to hold the next meeting of the National Council on Monday, November 7, 1938, at The Chemists' Club. Following meetings will be held on the second Tuesday of each month.

Dr. Harrisson stated that he would have no report for the Committee on Licensing of Chemists until the first of the year.

The possible representation of the Institute in the World's Fair was discussed.

Dr. Read reported for the Committee on Membership.

The following new members were elected:

FELLOWS

Bakken, Herman E.
(1938), *Assistant Director*, Aluminum Research Laboratories, Aluminum Company of America, New Kensington, Penna.

Bauer, John C.
(1938), *Chief Chemist*, Noxzema Chemical Company, West 32nd Street, Baltimore, Md.

Bengis, Robert O.
(1938), *Fellow*, Department of Chemistry, Yale University, New Haven, Connecticut.

Berne-Allen, Jr., A.
(1938), *Research Chemist*, E. I. du Pont de Nemours and Company, Waynesboro, Virginia.

Blanchard, William M.
(1938), *Professor of Chemistry; Dean*, College of Liberal Arts, DePauw University, Greencastle, Ind.

Briscoe, Herman T.
(1938), *Professor*, Department of Chemistry, Indiana University, Bloomington, Ind.

Buell, Harold D.
(1938), *Assistant Professor*, Department of Chemistry, Syracuse University, Syracuse, N. Y.

Cohoe, Wallace P.
(1938), *Consulting Chemist and Engineer*, 120 East 41st Street, New York, N. Y.

Collier, Simon
(1938), *Manager*, Inspection and Control Department, Johns-Manville, 22 East 40th Street, New York, N. Y.

Corey, Richard C.
(1938), *Chemist*, New York Steam Corporation, 15th Street and Irving Place, New York, N. Y.

Denslow, Roy R.
(1938), *Research Chemist*, E. I. du Pont de Nemours and Company, 256 Vanderpool Street, Newark, N. J.

Dunning, Fitzgerald
(1938), *Director of Chemical Research*, Hynson, Westcott and Dunning, Baltimore, Md.

Erskine, Archibald M.
(1938), *Research Chemist*, E. I. du Pont de Nemours and Company, 256 Vanderpool Street, Newark, N. J.

Fasig, Edgar W.
(1938), *General Superintendent*, The Lowe Brothers Company, 424 East 3rd Street, Dayton, Ohio.

Finn, Alfred Nelson
(1938), *Glass Technologist*, National Bureau of Standards, Washington, District of Columbia.

Freed, Meyer L.
(1938), *Chief Chemist*, The Rufert Chemical Company, Seymour, Conn.

Garard, Ira D.
(1938), *Head*, Department of Chemistry, New Jersey College for Women, New Brunswick, N. J.

Getman, Frederick H.
(1938), Hillside Laboratory, Stamford, Conn.

Glass, Hugh B.
(1938), *Research Chemist*, Swann and Company, Birmingham, Ala.

Gudheim, Arne R.
(1938), *Chief Chemist*, Lever Brothers Company, Edgewater, N. J.

Gustavson, Reuben G.
(1938), *Chairman*, Chemistry Department, University of Colorado, Boulder, Colorado.

Haenisch, Edward L.
(1938), *Assistant Professor*, Villanova College, Villanova, Penna.

Hammond, John Francis
(1938), *Teacher*, Villanova College, Villanova, Penna.

Hawkins, John E.
(1938), *Associate Professor*, Department of Chemistry, University of Florida, Gainesville, Fla.

Heath, Fred H.
(1938), *Professor*, Department of Chemistry, University of Florida, Gainesville, Fla.

Jones, Ernest Victor
(1938), *Head*, Department of Chemistry, Birmingham-Southern College, Birmingham, Ala.

Kelley, Louise
(1938), *Head*, Department of Chemistry, Goucher College, Baltimore, Maryland.

Kelly, Margaret W.
(1938), *Associate Professor*, Department of Chemistry, Connecticut College, New London, Conn.

Kern, Edward F.
(1938), *Professor*, School of Mines, Columbia University, New York, New York.

Kraybill, Henry R.
(1938), *Head*, Department of Agricultural Chemistry, Agricultural Experiment Station, Purdue University, Lafayette, Ind.

Mason, D. B.
(1938), *Director of Research*, Freeport Sulphur Company, 122 East 42nd Street, New York, N. Y.

Murchison, John T.
(1938), Department of Chemistry, North Texas Agricultural College, Arlington, Texas.

Nelson, Alfred C.
(1938), *Dean of Graduate School*, University of Denver, Denver, Col.

Palmer, George D.
(1938), *Associate Professor*, School of Chemistry, Metallurgy and Ceramics, University of Alabama, University, Ala.

Peterson, John Albert
(1938), *Chemist*, United Lacquer Manufacturing Company, 1001 Elizabeth Avenue, Linden, N. J.

Saunders, Paul C.
(1938), *Head*, Department of Chemistry, Alfred University, Alfred, N. Y.

Waddell, J.
(1938), *Research Chemist*, E. I. du Pont de Nemours and Company, New Brunswick, N. J.

Wurster, Oscar H.
(1938), *Consultant*, Wurster and Sanger, Inc., 5201 Kenwood Avenue, Chicago, Ill.

Xan, John
(1938), *Professor*, Howard College, Birmingham, Ala.

ASSOCIATES

Scharf, Reinhard W.
(A.1938), *Junior Chemist*, Picatinny Arsenal, Dover, N. J.

JUNIORS

Serbia, Gonzalo R.
(J.1938), *Assistant Superintendent of Manufacture*, Mario Mercado and Sons, Guayanilla, Puerto Rico.

Hackney, James Carlyle
(J.1938), *Research Worker*, Department of Chemistry, North Carolina State College, Raleigh, N. C.

Upon motion made and seconded, the Committee on Membership was granted $100.00 to continue its activities.

Dr. H. G. Knight discussed the reorganization of the United States Department of Agriculture.

There being no further business, adjournment was taken.

CHAPTERS

New York

Chairman, Frederick Kenney *Vice-chairman*, Frederick W. Zerban

Secretary-treasurer, D. H. Jackson
17 John Street
New York, N. Y.

Council Representative, W. D. Turner

The New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS announce a dinner in honor of Dr. Maximilian Toch, at The Chemists' Club, 52 East 41st Street, New York, N. Y., on Wednesday, November ninth, at seven o'clock.

Niagara

Chairman, William R. Sheridan *Vice-chairman*, Maurice C. Taylor

Secretary-treasurer, Carl H. Rasch
1212 Oliver Street
North Tonawanda, N. Y.

News Reporter to THE CHEMIST, George W. Fiero

Council Representative, Arthur W. Burwell

Pennsylvania

Chairman, George Russell Bancroft *Vice-Chairman*, Walter L. Obold

Secretary-treasurer, Harry C. Winter
4742 Pine Street
Philadelphia, Penna.

Council Representative, Gilbert E. Seil

Washington

Honorary President, Charles E. Munroe *President*, Frank O. Lundstrom
Vice-President, Albin H. Warth *Treasurer*, Joseph J. Stubbs
Secretary, A. P. Bradshaw
2121 New York Avenue, Washington, D. C.

News Reporter to THE CHEMIST, James F. Couch
Council Representative, Henry G. Knight

Why is a Stamp Collector?*

By J. N. Taylor, F.A.I.C., *Chemical Division*

"Why *do* you collect postage stamps?"

Well, when "Fortnightly" asked me *that* question I was somewhat flabbergasted, but upon analysis I believe the answer is — "for a number of reasons".

Most everyone collects something — either as a vocation or as an avocation — and I suspect that acquisitiveness, that universal human trait, may be the original behavioristic influence. Postage stamp collectors, however, as a rule quickly pass through the various stages of philatelic growth and do not pursue their hobby as mere accumulators. Some develop their philatelic faculties along historical or geographical lines or from the fine arts points of view — beauty, color, workmanship — or because of their tendencies toward scientific classification. Some advanced collectors go into philatelic research looking for and identifying varieties or seeking rareties. Some like to ferret out stamps depicting chemists, engineers, technology or Nature in her varying moods. Still others find in stamp collecting a means of travelling in foreign countries via the old armchair. All seek completion. And what joy in finding the object so long sought! Regardless of the motive, however, stamp collecting does seem to have a universal appeal and has well been called "the hobby of kings and the king of hobbies".

President Roosevelt, America's Number One collector, often renews his zest for life by taking time out from the affairs of State, getting out his stamp tongs and magnifying glass and studying, classifying and mounting his stamps. The late king George V took a keen interest in stamp collecting. Many of our own Bureau family at home and abroad are addicted to this extremely enjoyable and refreshing form of recreation.

Stamp collectors may be divided into those who are general collectors and those who specialize. Some collect everything and others prefer certain geographical and political areas. I like everything but prefer B. W. I. This is a most intriguing and romantic area, once the scene of daring adventure. Not so exciting today, these island jewels — wonderful lands of tropic splendor and decided charm — now lure the tourist from northern climes where skies are gray and winds are chill. The Caribbean is closely connected with the early history of our own country. It was on San Salvador (Watling), one of the Bahamas, that Columbus first landed in 1492. It was on Nevis, companion island of St. Kits, that Alexander Hamilton was born in 1757 and it was in Barbados that George Washington and his brother Lawrence sojourned in 1751-52.

Then there are covers — first-day, first-flight, naval, Merchant-Marines, etc. The Jubilees and Coronations (especially the former, were wonderful additions to cover fans' collections. I prize highly my Midshipmen's Cruise covers and those of the Merchant Marine Training Ship "Empire State" cruise. A rare and greatly prized cover with special cachet is my Shanghai via Hong Kong trans-Pacific Clipper First Flight East Bound. One cacheted envelope that I am sending depicts

* Reprinted from *Fortnightly*, published by The Bureau of Foreign and Domestic Commerce, Washington, D. C.

Black Beard's Castle supposed to have been the stronghold of Edward Teach, alias Black Beard, a desperate pirate who in the early part of the 18th century was the terror of the Caribbean Sea.

Stamp and cover collecting affords one an opportunity of corresponding with other collectors who wish to exchange. Some of my pen friends have become real cronies. I get a great deal of pleasure in corresponding with them and in learning what's going on in Highgate or Thornton Heath, Port of Spain or Basseterre. I learn about nutmegs in Grenada, arrowroot in St. Vincent and allspice in Jamaica and believe it or not, one correspondent recently expressed great satisfaction in being acquainted with such a handsome movie star!!

Editor's comment: Readers of THE CHEMIST will remember Mr. Taylor's article, "Chemists in Philately", which appeared in the October, 1936, issue.

THE SCIENCE ANGLER

Kenneth E. Shull, J.A.I.C.

It is said that fishermen in Equador are able to enjoy a day of fishing using a single worm as bait. This is not due to any unusual prowess on the part of the natives, nor to an inability of the fish to bite. The true explanation lies in the fact that earthworms in that country sometimes attain a length of five feet.

We are forced to ponder whether or not to class this in the category of fish stories.

There has been much controversy during the past several decades regarding the toxicity of copper compounds. This has been brought about largely through erroneously reported cases of copper poisoning. It is definitely known now that the human body requires copper for the formation of haemoglobin and, as a matter of fact, at least two milligrams are required each day. The United States Public Health Service rejects a drinking water which contains more than 0.2 mg. per liter of copper (about twice this amount is found in raw cow's milk, and even more in certain other foods). This is certainly a conservative standard, since it has been recently shown that copper does not begin to exhibit toxic effects until at least one hundred and fifty times the therapeutic dosage has been reached.

In spite of all this, copper pipes are being installed in a large percentage of our modern homes, and copper pots and pans are again being recommended as one of the best types to be used for cooking purposes.

Scientists in Germany have found that the addition of copper to steel quite materially decreases its susceptibility to oxidation.

Paving roads may soon become "one sweet job". Molasses, a by-product of the sugar industry, has been suggested as a possible road making material. Treatment involves resinification with a mixture of coal tar and asphalt.

It looks as though the alphabet, so lavishly used by the Government, has now pervaded the realm of chemistry. DNPM might be symbolic of some secret organization. Actually, however, it is a short way of saying dinitrophenylmorphine. This chemical, only recently prepared in the laboratory, is a combination of morphine and dinitrophenol. Reputedly it has none of the harmful properties of its two parents, yet has all of the somnolent and analgesic characteristics of morphine. Being addiction-free it should find wide application in medicine.

Quite a lot of valuable material floats unseen through the halls and rooms of the average domicile. Estimates show that a small house contains in the neighborhood of 200 cubic feet of argon valued at about $200 and almost 0.25 cubic feet of neon worth about $50. The other rare gases are present in considerably smaller quantities.

It is imperative that this bit of information be kept secret from all tax assessors.

The Westinghouse Electric and Manufacturing Company has just placed on the market a fluorescent chalk which is said to give off a penetrating brilliant green light. With this in hand it will be possible for our beloved pedagogues to illustrate their lengthy discourses in an otherwise darkened room.

Perhaps insult is added to injury in the case of those students who, when listening to a lecture, are in the dark anyway.

Just as colors are known to blend with and make more beautiful certain musical tones, so it has been found that odors play an important part in increasing the palatability of foods. With this in mind one can visualize the time when waiters will ask their customers whether they prefer their chicken-a-la-king scented with the fragrant aroma of lily-of-the-valley or with coumarin, the odor of new-mown hay. Already "kitchen chemists" have prepared roast beef steaming forth its emanation of attar of roses. Others soon to follow may make restaurant eating a real pleasure — save for those who are chronically possessed of acute coryza.

CHEMISTS

Perkin Medal Award

Dr. Walter S. Landis has been elected to receive the Perkin Medal of the Society of Chemical Industry for 1939. The medal is awarded annually for valuable work in applied chemistry and will be presented this year to Dr. Landis for his work on cyanamid, derivatives of cyanamid, fertilizers, ammonium phosphate in particular, the first commercial production of argon and contributions to the explosive industry.

The medal will be presented on January 6, 1939 at a meeting to be held at The Chemists' Club, 52 East 41st Street, New York City.

Martin Meyer, F.A.I.C., acting chairman of the Department of Chemistry of Brooklyn College, Brooklyn, N. Y., has been granted a leave of absence for the semester because of ill health.

National Research Council Appointments

The American Ceramic Society has appointed Alexander Silverman, F.A.I.C., head of the Department of Chemistry in the University of Pittsburgh, as its representative on the Division of Chemistry and Chemical Technology of the National Research Council. Dr. R. B. Sosman of the Research Laboratory of the United States Steel Corporation, Kearny, New Jersey, has been appointed to the Division of Geology.

Carl Kerby Stoddard, A.A.I.C., and Francis Miles Bower, J.A.I.C., have been appointed to coöperative fellowships at the University of Maryland, according to an announcement by Dr. John W. Finch, Director of the Bureau of Mines, United States Department of the Interior, and Dr. H. C. Byrd, president of the University of Maryland. Mr. Stoddard has been appointed to the fellowship in the Nonmetals Division of the Bureau of Mines at the University of Maryland. He received the M.S. degree in Chemistry from the University of Nevada and at the time of his appointment was a research worker in the laboratory of the Nevada State Agricultural Experiment Station. Mr. Bower was appointed to a research fellowship in chemical engineering at the University of Maryland. He received the M.S. degree from that University last June. The Washington Chapter of THE AMERICAN INSTITUTE OF CHEMISTS awarded him one of its Student Medals in 1937.

Mr. S. E. Sibley, a Fellow of the Australian Chemical Institute, called at the office of THE AMERICAN INSTITUTE OF CHEMISTS recently on his return trip from England to Australia. He informed us that professional problems of Australian chemists are very similar to those of American chemists. However, official recognition of the professional standing of the Australian Chemical Institute has been secured so that chemical positions in the government of Australia are now filled with members of that Institute. Mr. Sibley is director of Mauri Brothers and Thomson, Ltd., Sydney.

Chemical Industry Medal

The Chemical Industry Medal of the Society of Chemical Industry will be presented to Dr. J. V. N. Dorr, president of the Dorr Company, Inc., at a joint meeting of the American Section of the Society of Chemical Industry and the American Chemical Society on November fourth, with Wallace P. Cohoe, F.A.I.C., presiding. The medal is awarded to Dr. Dorr in recognition of his inventions and subsequent world-wide introduction of apparatus and processes in many chemical, metallurgical and sanitational operations which have made possible low cost production on a large scale. Dr. Dorr will present a paper entitled "The Influence of the Laws Relating to Research and Invention on Human Progress." Mr. Howard C. Parmalee of the McGraw Hill Publishing Company will speak on the accomplishments of the medalist.

The annual meeting and dinner of the United States Institute for Textile Research is scheduled for Thursday, November tenth, at the Hotel Commodore, New York, N. Y. A research conference on the warp sizing of cottons and spun rayons will be held in conjunction with this meeting and will be open to all interested.

EMPLOYMENT

Chemists Available

ORGANIC CHEMIST, F.A.I.C., Ph.D. in synthetic organic chemistry; age 27, experienced in microchemistry. Industrial research experience. Now employed assistant instructor in eastern university; seeking industrial research position or permanent teaching position with opportunity for research. Member of Sigma Xi, Phi Lambda Upsilon; location immaterial; available immediately. Please reply to Box 91, THE CHEMIST.

CHEMIST, M.S. degree, age 37, desires position in laboratory or classroom. Experienced in both analytical work and teaching. Steel, rubber, heavy chemicals. As teacher would prefer small junior college. Please reply to Box 93, THE CHEMIST.

SENIOR RESEARCH CHEMIST, F.A.I.C., wishes position. A.B. and Ch.E. degrees. Age 37. Thirteen years' experience in asphalt, non-ferrous metals, and all phases of petroleum refining and research. Please reply to Box 99, THE CHEMIST.

INDUSTRIAL CHEMIST. Position wanted by F.A.I.C. Twenty-two years' experience in industrial research and plant operation; individual work and supervision. Specialties: dyes, pharmaceuticals, intermediates, vitamins, both water and oil soluble. Plant design and construction. Ph.D. from leading American University. Member American Institute of Chemical Engineers. Organic and biological chemistry. Please reply to Box 95, THE CHEMIST.

CHEMIST-BACTERIOLOGIST, A. A. I. C. Analytical, research development. Pulp, paper and by-products; distilled alcoholic beverages; dairy products; brewery; soap, pharmaceuticals, and cosmetics; general food investigations. Please reply to Box 101, THE CHEMIST.

INDUSTRIAL CHEMIST, F.A.I.C., Harvard Graduate; age 36. Ten years' plant and laboratory experience. Pulp, paper, paper board mills; cellulose plastics; mineral pigments; dyes; starches, resins and waxes. Available immediately. Please reply to Box 103, THE CHEMIST.

CHEMIST, J.A.I.C., B.S. in Chem. 1938. Knowledge of organic and inorganic analysis. Thesis in organic analysis. Desires position with possibility of research in analytical methods. Please reply to Box 99A, THE CHEMIST.

ORGANIC CHEMIST, F.A.I.C., Ph.D. in synthetic organic chemistry; age 27, single. Experienced in organic synthesis, has designed and supervised work in microchemical laboratory; year industrial research experience (thiourea resins); third year assistant instructor in eastern university; seeking industrial research position. Publication; member Sigma Xi, Phi Lambda Upsilon; location immaterial, available at short notice. Please reply to Box 105, THE CHEMIST.

Positions Offered

SUPERINTENDENTS (*2*). Chemists thoroughly experienced in the formulation of paints. $3600. Please reply to Box 102, THE CHEMIST.

PRODUCTION CHEMIST, to produce triphenylmethane dyes. Please reply to Box 104, THE CHEMIST.

DISTILLATION CHEMIST, to assist chief chemist in essential oil industry. Please reply to Box 106, THE CHEMIST.

CHEMIST. Research and development of synthetic resins. Western Pennsylvania. Please reply to Box 108, THE CHEMIST.

U. S. Civil Service Examination

PRINCIPAL INDUSTRIAL TOXICOLOGIST (organic compounds) $5,600 a year. U. S. Public Health Service. Applications must be on file with the U. S. Civil Service Commission, Washington, D. C. not later than November 28, 1938. Requirements: M.D. degree from medical school of recognized standing. 5 years of experience in scientific toxicological work. Application forms may be obtained from the Secretary, Board of U. S. Civil Service Examiners, at any first-class post office, or from the commission at Washington, D. C.

BOOKS

BASIC GERMAN FOR SCIENCE STUDENTS, by M. L. Barker, Ph.D. Lecturer in German, University of Edinburgh. *Chemical Publishing Company of New York.* 1937. Third Edition. 186 pages. $2.50.

This text is particularly designed for the science student who must obtain a reading knowledge of German without taking German as one of his college courses. B. Q. Morgan's *German Frequency Word List* of one thousand basic German words has been used as a guide for this work. E. L. Thorndike's one-thousand most important English words were compared with the previous list and seven-hundred words were found to be common to both lists. Part I of this volume introduces a vocabulary of six hundred and fifty of the basic German words. Grammar is presented as simply as possible to enable the student to read the language.

Part II consists of short scientific extracts on chemistry, zoölogy, botany, physics, mathematics, and medicine, to introduce German scientific terms connected with the special subject, and are accompanied by approved English translations. Part I and II together contain approximately thirteen hundred and seventy-two basic German words, and the book is so clearly explained that the student will find it possible to gain a reading knowledge of the language by private study. Common technical terms in chemistry are included, in addition to an appendix containing excerpts from the B.Sc. examinations of the Universities of London and Edinburgh.

CHEMICAL SYNONYMS AND TRADE NAMES by William Gardner, *D. Van Nostrand Company, Inc.*, New York 1937. 495 pages. $2.00.

This fourth edition of this dictionary and commercial hand book contains approximately 25,000 definitions and cross-references, and as it has been brought up to date, it presents a most valuable publication for those interested in commercial chemicals, whether they be

chemical manufacturers or research chemists. A description of the chemical composition and properties of practically all of the compounds mentioned is given, and the information thus furnished is most helpful in determining the place of each of these compounds in the scheme of chemistry.

It contains 150 pages of additional synonyms and trade names not found in the last previous edition, which fact is indicative of the completeness of the information furnished by this book. This publication is a dictionary of all the synonyms and trade names in commerce and hence will prove a constant book of reference to chemists who are desirous of identifying commercial chemical compounds by their commercial names.

PHOTOGRAPHY PRINCIPLES AND PRACTICE, by C. B. Neblette, F.R.P.S., Counselor and Administrative Head, Department of Photographic Technology, Rochester Athenaeum and Mechanics Institute. *D. Van Nostrand Company, Inc.* Third Edition, 1938. 652 pages. 6¼" x 9¼". $6.50.

Each successive edition of this comprehensive work brings the latest developments in the rapidly advancing field of photography. Twenty-eight chapters give information on every branch of photography, from its history to a description of amateur and professional cameras, photographic optics, development, theory of development, negative materials, fixing, washing, drying, defects, reduction and intensification, printing, projection printing, toning, mounting, lantern slides, printing processes such as carbro and bromoil, principles of three color photography, three-color negative making and subtractive printing processes.

Complete formulas, tables, charts, diagrams, and photographs are included to add to the usefulness of this informative work. Chemical properties of sensitizing dyes and technical fundamentals are accurately treated.

Particularly valuable is the list of the more important reference works on photography and the references to the technical journals. In addition, the book is adequately indexed.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, etc. REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, and MARCH 3, 1933

Of THE CHEMIST, published monthly except June, July, and August at New York, N. Y., for October 1, 1938.

STATE OF NEW YORK } ss.
COUNTY OF NEW YORK }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Vera F. Kimball, who, having been duly sworn according to law, deposes and says that she is the Editor of THE CHEMIST and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

	Post Office Address
Name of	
Publisher: THE AMERICAN INSTITUTE OF CHEMISTS,	233 Broadway, New York, N. Y.
Editor: Vera F. Kimball,	233 Broadway, New York, N. Y.
Managing Editor: Vera F. Kimball,	233 Broadway, New York, N. Y.
Business Manager:	None

2. That the owner is: (If owned by a corporation, its name and address must be stated

and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

THE AMERICAN INSTITUTE OF CHEMISTS, INC., 233 Broadway, New York, N. Y.

(Non-profit making corporation. No stockholders.)

Robert J. Moore, President, 230 Grove Street, Bloomfield, N. J.

J. W. E. Harrisson, Vice-president, 214 So. 12th Street, Philadelphia, Penna.

B. H. Knight, Treasurer, 50 East 41st Street, New York, N. Y.

H. S. Neiman, Secretary, 233 Broadway, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) NONE.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by her.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is———. (This information is required from daily publications only.)

Vera F. Kimball
(Signature of Editor)

Sworn to and subscribed before me this seventeenth day of October, 1938.

Marie A. Kurtzke, Notary Public
(My commission expires March 30, 1940)

NORTHERN LIGHTS

By Howard W. Post, F.A.I.C.

Not so very long ago, we heard rumors to the effect that the business of selling inorganic gases to the public was going swiftly to the dogs. Recent figures published in *Canadian Chemistry and Process Industries* **22** 474 (1938) do not seem to bear out these forebodings. For 1937, total production throughout the Dominion was valued at $3,929,242; more than 17 per cent higher than for 1936. In all, twenty-seven factories were in operation: twelve in Ontario, five in Quebec, three in Manitoba, two each in Nova Scotia, Alberta, and British Columbia, and one in Saskatchewan.

Oxygen was produced to the extent of over 194,000,000 cubic feet, hydrogen over 40,000,000, and carbon dioxide over 6,000,000. Other gases turned out in sizable amounts were ammonia, both anhydrous and hydrated, solid carbon dioxide, nitrogen, and nitrous oxide. Among organic gases, over 48,000,000 cubic feet of acetylene was produced during the year under review.

The statistics were presented by the Compressed Gases industry in Canada.

We were interested in an article in *Canadian Journal of Research* **16B** 242 (1938) on the subject of delignification of spruce wood pulp using magnesium sulfite liquors. The rate of delignification varied as the concentration of free sulfur dioxide, the combined SO_2 being constant. On the whole, results seemed to be a little more satisfactory than with calcium.

Our readers will be interested in a short article on parlimentary reporting found in the *C-I-L Oval* of October, 1938. The scene—the Canadian House of Commons in session.

News of Process Industries

(From Canadian Chemistry & Process Industries)

MOOSE JAW, SASK.: Canadian Claycraft Studios will make art pottery souvenirs, utilizing clays from Claybank. Mr. C. Worcester, son of Professor W. G. Worcester of the Ceramics Department of the University of Saskatchewan, is manager.

LETHBRIDGE, ALTA.: A record output for Turner Valley was reported recently, when Frontier Royalties produced 7,617 barrels in a twenty-four hour test. This is said to be the first time a Valley well has had a daily production over 7,000 barrels.

VANCOUVER: Hem-O-Rite Products, Ltd. have been incorporated, with offices at 675 West Hastings Street, as manufacturers and dealers in medicinal preparations.

TORONTO: Dr. Ballard's Animal Food Products, Ltd., of Vancouver, have acquired a factory at 121 Liberty Street, where they will manufacture their line of animal foods.

TORONTO: Eagle-Ottawa Leather Co. of Canada, Ltd., has been incorporated as a subsidiary of the Grand Haven, Michigan, firm, and has taken over the Whittington Leather Co., 515 Front Street. E. H. M. Whittington remains as manager of the new company, which will manufacture upholstery leather.

TORONTO: Skat Company, of Hartford, Connecticut, manufacturers of powdered soap, cleaning compounds, insecticides, etc., have concluded arrangements with the Duncan Products, 367 Sorauren Avenue, for the manufacture of their various products.

Toronto: Aluminum Co. of Canada, Ltd., Sterling Road, are enlarging their aluminum sheet mill and will install additional heat-treatment equipment.

To The American Institute of Chemists:

What sold me on your organization was your code of ethics. I have known many brilliant chemists who might have bettered themselves materially had they had a sheet anchor like your code to hold them down to earth. If we review the lives of the most creative chemists in Europe, after Bunsen, we will find that most of them were sound business men as well. Perhaps that is one of the most useful things that I learned in Germany. I was a member of a little group in Munich which bred two Nobel prize winners out of a scant dozen workers. Whenever we would plan an involved piece of research, the boss, who was Friedrich von Mueller, would listen patiently to the plan, pacing up and down and chewing on half of a cigar, then square off and say, *"Ja, meine Herren, aber wozu nutzt es?"* If we couldn't answer that question, many a piece of research died a-borning.

—E. E. BUTTERFIELD, F.A.I.C.

Jacque C. Morrell, F.A.I.C., associate director of research of Universal Oil Products Company, Chicago, Illinois, spoke before a meeting of the Chicago Section of the American Chemical Society, September twenty-third, on "Developments in Hydrocarbon Chemistry."

Objectives
of the
AMERICAN INSTITUTE of CHEMISTS

To give chemists professional solidarity.

To put the profession back of a definite code of ethics.

To insist on adequate training and experience qualifications.

To educate the public to an understanding of what a chemist is.

To protect the public and the profession by fighting quackery.

To raise the economic status of chemists.

HOWARD S. NEIMAN, *Secretary*
The American Institute of Chemists
233 Broadway, New York, N. Y.

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